Rapid roll out of SARS-CoV-2 antibody testing

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Dear Editor

We have published a paper with 12 tables (in a supplementary file) with calculations of sensitivity, specificity and the predictive power of a positive and negative test that will help people understand the concerns about the rapid roll-out of SARS-CoV-2 antibody tests expressed by Andersson and colleagues. With our colleagues[1] we showed that even at high levels of specificity, an important proportion of positive test results will be false positives, when the prevalence of the infection in the population is low. Currently, surveys suggest around 5% of the UK population have had covid-19. At this prevalence, when using an antibody test system with 99% specificity and 99% sensitivity (which are difficult to achieve in clinical practice even if achieved in research circumstances) 16.2 % of positive test results would be in people who have not had the disease (predictive power of a positive test 83.8%). Put another way, if 100,000 people were to be tested, 5900 people would test positive, but of these 950 would be false positives. Unfortunately, without additional clinical information, you couldn't be sure who genuinely had had the infection and who had not. These are matters of probabilities not certainties. We conclude our article by saying: "Giving false reassurance on which personal or societal decisions might be based could be harmful for individuals, undermine public confidence and foster further outbreaks."
It is imperative that antibody tests are used thoughtfully and combined with other relevant information that increases the prior probability of the disease being present e.g. a previous typical clinical history or even better, virological evidence of infection. Our paper also provides calculations with a prevalence of 10% and 20%, figures that may apply in the future in whole populations, and probably apply now in some settings e.g. hospitals or care homes.

1 Kumleben N, Bhopal R, Czypionka T, Gruer L, Kock R, Stebbing J, Stigler FL. Test, test, test for COVID-19 antibodies: the importance of sensitivity, specificity and predictive powers. Public Health 2020;185:88-90. https://doi.org/10.1016/j.puhe.2020.06.006